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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,837	09/15/2003	Michael Bart Viola	GP-303377	1187

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EXAMINER

HANDAL, KAITLY V

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,837

Applicant(s)

VIOLA ET AL.

Examiner

Kaity Handal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/27/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Xiong (US 5,147,201) in view of Asou et al. (US 2002/0150800 A1).

With respect to claim 1, Xiong teaches an apparatus/burner comprising a housing (fig. 1) defining a frustoconical interior region (as illustrated) having an inlet opening (25) and an outlet opening (near (50)) for the passage of at least one fluid/fuel and air into and out of the frustoconical interior region; a first/flow distributor (30) and a second retention member/rigid porous plate (52) (illustrated), said first retention member/flow distributor (30) in fluid communication with said inlet (25) (illustrated) and said second retention member/rigid porous plate (52) in fluid communication with said outlet opening (near (50)), and a plurality of chemically inert particles/refractory particles (46) contained within said frustoconical interior (as illustrated) region between said first retention member/flow distributor (30) and said second retention member/rigid porous plate (52),

With respect to claim 2, Xiong teaches wherein the inlet opening (25) comprises a diameter less than a diameter of said outlet opening (near (50)) (as illustrated).

With respect to claims 3-4, while Xiong teaches the general shape of the frustoconical interior region (fig. 1), he fails to show the specific cone angle. It has been held that if the change in size and shape is not patently distinct over the prior art absent persuasive evidence that the particular configuration of the claimed invention is significant. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). MPEP 2144.04.

With respect to claims 5-6, Xiong further teaches wherein said particles spherical/(having one dimensional size value) (col. 6, lines 14-18) and are comprised of zirconium oxide/zirconia (col. 6, lines 9-11).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asou et al. (US 2002/0150800 A1) in view of Xiong (US 5,147,201).

With respect to claim 10, Asou teaches an apparatus wherein a burner (fig. 1, 8') outlet is in fluid communication with a reactor/reformer (3) wherein a reaction surface/catalyst (page 3, paragraph [0038], lines 1-6) is in fluid communication with a burner outlet opening (as illustrated), however Asou's burner does not have a

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frustoconical interior region. Xiong teaches an apparatus/burner comprising a housing (fig. 1) defining a frustoconical interior region (as illustrated) having an inlet opening (25) and an outlet opening (near (50)) for the passage of at least one fluid/fuel and air into and out of the frustoconical interior region; a first/flow distributor (30) and a second retention member/rigid porous plate (52) (illustrated), said first retention member/flow distributor (30) in fluid communication with said inlet (25) (illustrated) and said second retention member/rigid porous plate (52) in fluid communication with said outlet opening (near (50)), and a plurality of chemically inert particles/refractory particles (46) contained within said frustoconical interior (as illustrated) region between said first retention member/flow distributor (30) and said second retention member/rigid porous plate (52). Xiong's burner comprises a porous-phase combustion in order to produce a relatively high radiant heat conversion, high combustion intensity and low combustion emissions (col. 4, lines 58-68).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the burner of Xiong with that of Asou's, in order to produce a relatively high radiant heat conversion, high combustion intensity and low combustion emissions.

4. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiong (US 5,147,201), as applied to claim 1, and further in view of Dijkhuizen (US 2004/0120847 A1).

With respect to claim 7, Xiong discloses all claim limitations as set forth above but fails to show wherein a tube mixer is in fluid communication with said inlet opening. Dijkhuizen teaches the benefit of having a tube mixer in fluid communication with an inlet opening in order to allow material flowing through to move at a constant velocity (page 5, paragraph [0028], lines 14-18 and page 6, lines 1-4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a tube mixer in fluid communication with said inlet opening in Xiong's apparatus, as taught by Dijkhuizen, in order to allow material flowing through to move at a constant velocity.

With respect to claim 8, Dijkhuizen further teaches wherein said tube mixer comprises a cylindrically shaped tube and a helical shaped divider longitudinally disposed within an interior region of said cylindrically shaped tube/helical chute conveyor (page 5, paragraph [0028], lines 14-18 and page 6, lines 1-4).

5. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asou et al. (US 2002/0150800 A1) in view of Xiong (US 5,147,201), as applied to claim 10 above, and further in view of Dijkhuizen (US 2004/0120847 A1).

With respect to claim 11, Asou as modified discloses all claim limitations as set forth above but fails to show wherein a tube mixer is in fluid communication with said burner inlet opening. Dijkhuizen teaches the benefit of having a tube mixer in fluid communication with an inlet opening in order to allow material flowing through to

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move at a constant velocity (page 5, paragraph [0028], lines 14-18 and page 6, lines 1-4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a tube mixer in fluid communication with said inlet opening in Asou's modified apparatus, as taught by Dijkhuizen, in order to allow material flowing through to move at a constant velocity.

With respect to claim 12, Dijkhuizen further teaches wherein said tube mixer comprises a cylindrically shaped tube and a helical shaped divider longitudinally disposed within an interior region of said cylindrically shaped tube/helical chute conveyor (page 5, paragraph [0028], lines 14-18 and page 6, lines 1-4).

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xiong (US 5,147,201), as applied to claim 1 above, and further in view of Edlund et al. (US 2003/0159354 A1).

With respect to claim 9, Xiong discloses all claim limitations as set forth above but fails to show wherein an insulator is proximate to said outlet opening. Edlund teaches a fuel processor comprising a reformer having an insulator proximate to said outlet opening/insulation around the end plates in order to reduce heat loss (page 14, paragraph [0135], lines 6-7)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include insulator proximate to said outlet opening/insulation

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around the end plates in Xiong's apparatus, as taught by Edlund, in order to reduce heat loss.

7. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asou et al. (US 2002/0150800 A1) in view of Xiong (US 5,147,201), as applied to claim 10 above, and further in view of Edlund et al. (US 2003/0159354 A1).

With respect to claim 14, Asou as modified discloses all claim limitations as set forth above but fails to show wherein his apparatus comprises an insulator proximate to said outlet opening. Edlund teaches a fuel processor comprising a reformer having an insulator proximate to said outlet opening/insulation around the end plates in order to reduce heat loss (page 14, paragraph [0135], lines 6-7)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include insulator proximate to said outlet opening/insulation around the end plates in Asou's modified apparatus, as taught by Edlund, in order to reduce heat loss.

With respect to claim 15, Asou as modified discloses all claim limitations as set forth above but fails to show wherein his apparatus comprises at least one vaporizer. Edlund teaches a fuel processor comprising a reformer having at least one vaporizer/coil (fig. 3, 30a) in order to vaporize the mixture of liquid methanol and water and allow the reaction mix to enter the reforming region as vapor (page 3, paragraph [0042], lines 10-15).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to include at least one vaporizer in Asou's modified apparatus, as taught by Edlund, in order to vaporize the mixture of liquid methanol and water and allow the reaction mix to enter the reforming region as vapor.

Response to Arguments

Applicant's arguments with respect to claims 1-12 and 14-15 have been considered but are moot in view of the new ground(s) of rejection necessitated by the amendment.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KH

10/10/2006


ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER